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Chang Y. Lee

Michael P. H. Lau

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Manipulation of External Tachodynamometer by the Patient: Case Report

Chang Y. Lee, MD* and Michael P.H. Lau, MD*

External tachodynamometer has frequently been used to evaluate premature labor. In three cases, the patient was apparently able to record uterine contraction-like curves by means of abdominal pressure. In two of these cases, the patient was evidently using this manipulation to gain attention and support from her husband and/or family members. In the third case, described in this paper, because false curves were recorded, an emergency Caesarean section was performed under the impression that abruptio placenta had occurred.

The external tachodynamometer has frequently been used to make a presumptive diagnosis of premature labor and to evaluate the patient's response to tocholytic agents. With repeated and prolonged use of external monitors, some patients may become familiar with the recording mechanisms. We have recently observed three cases in which the patients manipulated the external tachodynamometer to record uterine contraction-like curves by means of abdominal pressure. In one case, because false curves were recorded, an emergency Caesarean section was performed under the impression that abruptio placenta had occurred.

Case Report

A 25-year-old white woman (gravida II, para I), whose last normal menstrual period was in February 1981, wanted to have a trial vaginal delivery. She had previously has a primary low segment transverse Caesarean section performed in 1979 at another hospital for cephlopelvic disproportion with contracted midpelvis. The infant weighed seven pounds and ten ounces. X-ray pelvimetry done at that time revealed 9.5 cm intraspinus diameter. However, the patient stated that she had not been given a fair trial of labor because her cervix was dilated 3 to 4 cm when the decision to perform Caesarean section was made. Clinical pelvimetry during the initial visit indicated that the patient did not appear to be contracted at midpelvis, and ischial spines were not prominent.

When she came to our institution, she was informed that the decision for trial vaginal delivery could be made when information was obtained from pelvic examination after 36 weeks of gestation and in early labor. The patient's husband was afraid of uterine rupture and did not want his wife to have a trial vaginal delivery.

Ultrasonic examination on August 3, 1981 revealed a single, viable fetus of 22 weeks gestation. On September 29, around 30 weeks of gestation, the patient was admitted to the labor and delivery area because of increased uterine activity and a tender area on the uterine fundus. The cervix was closed and uneffaced. Uterine activity gradually decreased with intravenous Ritodrine® infusion, and she was transferred to the antepartum unit where she received oral Ritodrine®. However, the patient was transferred to the labor and delivery area for intravenous infusion of Ritodrine® two more times during the next six days. Her cervix remained closed and uneffaced.

On October 6, the patient started to scream because of severe pains in the uterus. Uterine activity monitoring revealed frequent uterine contractions, and the abdomen felt hard and tender. The cervix was closed, uneffaced, and there was no bleeding from the cervical os. On the basis of the clinical picture and the frequent uterine contractions recorded by the external tachodynamometer (Fig. 1), an emergency Caesarean section was performed based upon a diagnosis of abruptio placenta. A premature baby boy weighing 1380 gms was delivered

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*Department of Obstetrics and Gynecology, Henry Ford Hospital
Address reprint requests to Dr. Lee, Department of Obstetrics and Gynecology, Henry Ford Hospital, 2799 W Grand Blvd, Detroit, MI 48202.

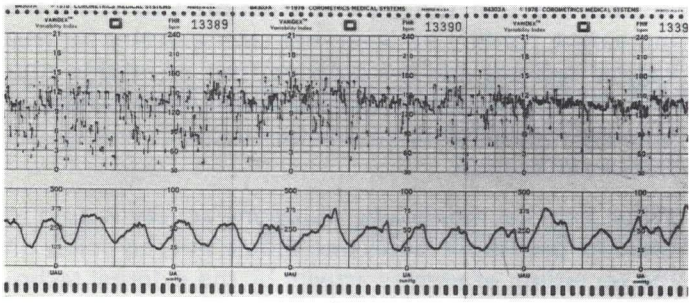

Fig. 1

Frequent low amplitude uterine contractions recorded by external tachyodynamometer are similar to the uterine activity recording in the case of abruptio placenta. Paper speed is 3 mg/min. Each prominent vertical line corresponds to 3 cm of 1 min of time.

through a low vertical uterine incision, with an Apgar score of 8 at 1 minute and 9 at 5 minutes. No evidence of abruptio placenta was found. When the fetal heart rate and uterine activity monitoring was reviewed, it appeared that the patient had been recording uterine activity-like curves by means of abdominal pressure (Figs. 2,3).

The patient was informed of the operative findings. However, it was apparent in the psychological interview that she firmly believed she actually had an abruptio placenta. The infant was discharged six weeks after delivery.

Discussion

It is often difficult to differentiate between premature labor and false labor unless the labor progresses to demonstrable effacement and dilation of the cervix. By this time, however, attempts to arrest labor may not be effective. Uterine contractions that occur at least once every ten minutes and last for 30 seconds or more have been used as a minimum criterion toward a presumptive diagnosis of premature labor (1).

During 1981 and 1982, we had three patients who were found to be manipulating the external tachodynamometer during evaluation for possible premature labor. In two patients, social service and psychological interviews indicated that they were trying to gain attention and support from their husband and/or family members. Both patients made repeated visits to the clinic and to the labor and delivery area before they were told that their uterine activity had been produced by abdominal pressure.

In the case presented, it was noted during the psychological interview that the patient had developed an increasing conflict between her strong desire for trial vaginal delivery and the fear of uterine rupture that had been expressed by her husband. While the patient was being examined, the staff discussed partial abruptio placenta as a possible cause of increased uterine activity with a tender area on the uterine fundus. The patient may have overheard this discussion, as well as the discussion about the uterine activity pattern recorded by the external tachodynamometer in cases of abruptio placenta (Figs. 2,3). Although the fetal heart rate (FHR) recorded before delivery was unsatisfactory, a few nonperiodic accelerations could be recognized (Fig. 4). Since the signs of FHR distress may not appear in minimal to moderate degrees of abruptio placenta, it cannot be ruled out if the FHR recording is normal.

In the early part of uterine activity recorded on the day of the patient's Caesarean section, frequent low amplitude uterine contractions occurring every minute were similar to the uterine activity recording that indicates abruptio placenta by means of external tachodynamometer (2) (Fig. 1). When the later part of the FHR-UC monitoring was reviewed, the fluctuation of uterine activity tracings was too frequent to be considered as uterine contractions (Fig. 4).

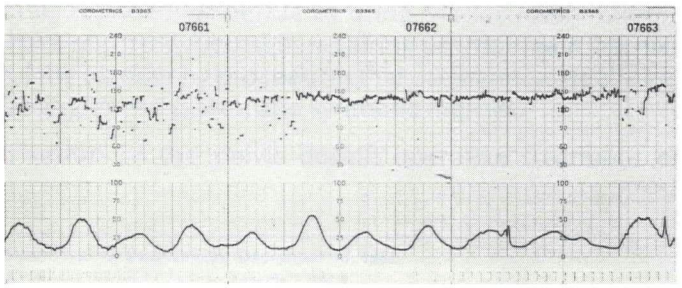

Fig. 2

Approximately 30% of abruptio placenta did not produce fetal heart rate signs of fetal distress. Note frequent uterine contractions.

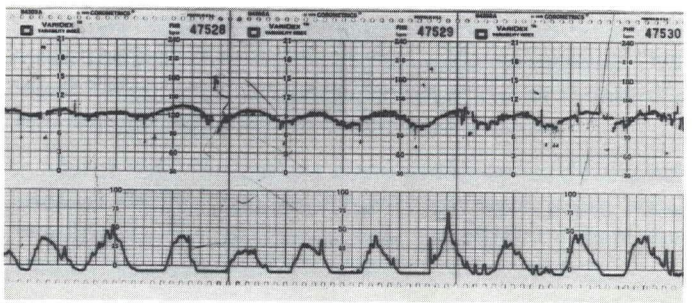

Fig. 3

Frequent late decelerations recorded in response to frequent uterine contractions with abruptio placenta.

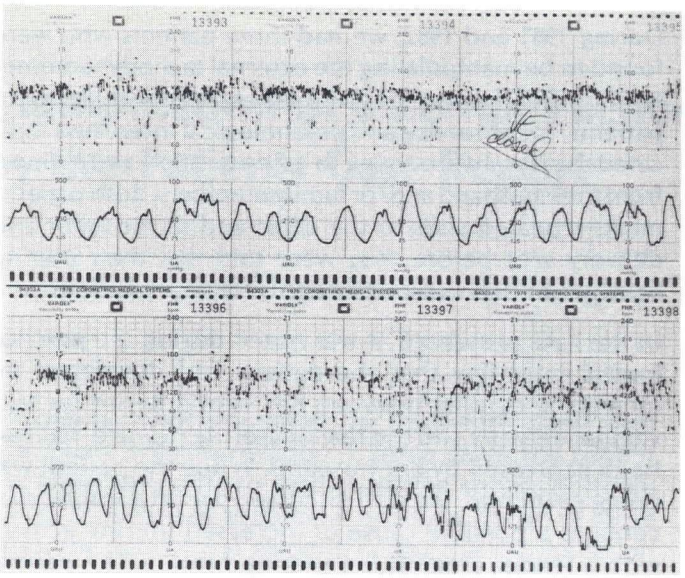

Fig. 4

Fluctuations on the uterine activity tracing recorded by the external tachodynamometer are too frequent to be considered as true uterine contractions.

We believe that the patient attempted to solve the increasing conflict between her strong desire for trial vaginal delivery and the growing fears of uterine rupture by recording false uterine activity curves. Subsequently, she delivered a premature infant by emergency Caesarean section.

When external monitoring of uterine activity is used to evaluate premature labor, one should not rely solely on the recording of uterine activity by the external tachodynamometer, especially for patients who had been monitored repeatedly for possible premature labor. Palpation of the abdomen and uterus should be done more frequently to evaluate uterine activity in these cases. In all three cases, pelvic examination did not reveal any demonstrable change in effacement and dilation. In the case presented, the patient's premature delivery by emergency Caesarean section could have been avoided by more careful evaluation of the uterine activity recording.

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